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CANCER

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Carcinoma of the Pancreas

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There have been 12 cases of carcinoma of the pancreas in 420 autopsies in this hospital in the last 4 years—or an incidence of roughly 3%. The incidence in the last 100 autopsies has been 6%.

Symptoms and Signs Usually Described

The symptoms of the disease as given in most text books of medicine and surgery are not constant and stress is placed on different symptoms by different authorities.

1. Loss of Weight

There is usually marked and rapid loss of weight and frequent anorexia, nausea, and vomiting.

2. Pain

Most agree that pain is an early symptom. Hurst says it is the initial complaint in 65% of cases.

The pain is variously described; a mild epigastric distress, a dull aching pain, to severe pain of boring or grinding type and rarely colicky type.

The situation of the pain is generally the upper abdomen deep in the epigastrium and usually referred to the back.

The pain may be persistent or paroxysmal and is usually not related to meals or bowel movements.

The pain is frequently worse at night and aggravated by lying down.

3. Palpable Mass in Abdomen

This is infrequent except in extreme cachexia. The distended gall bladder at times is palpable.

4. Jaundice

This is the symptom that has made the greatest impression on clinicians. Jaundice is the symptom that usually leads to diagnosis of carcinoma of the pancreas and is due to pressure of the tumor in the head of the pancreas on the bile duct and is considered to be painless in most cases.

The jaundice is intense, permanent and usually associated with dilatation of the gall bladder which may reach a large size and is palpable.

5. Symptoms Due to Loss of Function of the Pancreas

Fatty diarrhoea is not often present and glycosuria is uncommon.

In review of histories of the 12 cases at this hospital the following symptoms were prominent:

1. Loss of Weight

This was a striking feature in 11 of the 12 cases. It was not recorded in the 12th case with severe symptoms for 1 month and who died of purpura with hemorrhage from mucous membranes and gastro intestinal tract. The common weight loss was 20 to 30 pounds in three months with one case 20 pounds in one month and another 58 pounds in three months.

The weight loss did not appear to be related to the site of the lesion in the pancreas.

2. Pain

Pain was a prominent symptom in 9 of the 12 cases.

The pain was situated chiefly in the upper abdomen in the epigastrium and periumbilical and in some radiating through to the back. Pain in the back was the chief site in three cases—one had also epigastric pain with sacroiliac pain; the other the pain was in the back and radiated around to the epigastrium and to lower quadrants of the abdomen; and the 3rd, the pain remained severe in the sacroiliac regions with episode of epigastric pain 3 months previous.

In 2 cases the whole gland was involved and the pain was epigastric in one and in the other there was backache with epigastric pain — referred in reverse!

In 1 case of vague generalized abdominal pain the lesion was in the head of the pancreas. Weight loss was marked and complaints were considered psychogenic at first.

In 3 cases where the body was involved the pain in one was severe upper abdominal sometimes radiating through to the back, the 2nd was epigastric in location and 3 months later the sacroiliac region, and the 3rd umbilical in situation.

Where the tail was involved there was periumbilical pain and also pain in the sacroiliacs region of the back.

In one case where head and body was involved and another where body and tail was involved the pain was epigastric in location in both cases.

The pain was variously described from a dull ache to a severe pain, colicky and crampy, paroxysms to constant pain. The pain was usually not related to meals but in one case appeared to be relieved by food. The pain was worse at night

in four cases. There appears to be no diagnostic type of pain.

3. Palpable Mass in the Abdomen

The liver was palpable in 3 cases. A mass was felt in the epigastrium on admission once; a mass was felt to the left of the umbilicus once. In one case there was a hard nodule 1 inch to right of the umbilicus which was biopsied and revealed metastatic tumor growth in the falciform ligament of the liver.

In another case a mass was palpable in the upper abdomen one month after laparotomy revealed carcinoma of the head of the pancreas.

4. Jaundice

Three cases were jaundiced on admission to hospital.

In 2 the jaundice was painless and the other complaint was loss of weight and in these cases the original diagnosis was carcinoma of the head of the pancreas. The other jaundiced patient had constant epigastric pain preceding the onset of the jaundice and also loss of weight. The diagnosis in this case was not carcinoma of the pancreas.

This reveals the commonly held belief that painless jaundice is the common sign of carcinoma of the pancreas and without it the occurrence of carcinoma elsewhere in the pancreas is not considered.

5. Symptoms Due to Loss of Function of the Pancreas

Some of the patients had bouts of diarrhoea at the onset and during the course but the character of the stools was not noted, except in the one case with purpura and hemorrhage from G.I. tract. One case with loss of appetite and loss of weight of 58 pounds in 3 months with history of bronchitis for many years had the lesion in body and tail.

Incidence

Most cases occur after 50 years of age but it has been reported at 15 years.

In our small series one was 27 and another 31 years of age. All the other cases were over 50 years with 50% over 60 years of age. Primary carcinoma of the pancreas is by no means a rare disease. Many estimates as to frequency have been made and Berk suggests that it causes 1 to 2 per cent of all deaths in the population at large, is present in about 0.1 per cent of all patients admitted to large general hospitals, is observed at 0.3 to 0.75 per cent of all autopsies and comprises 1 to 2 per cent of all carcinomas. Willis, in a series of 943 cases of cancer at autopsy, found 33 cases of carcinoma of the pancreas or an incidence of 3.5% and only ⅓ had been diagnosed clinically.

Sex

More common in males. This series was entirely male veterans.

Sites in Gland

In most series more than 50% of the tumors are recorded as occupying the head of the pancreas. Illingsworth and Dick record a diffuse involvement of the whole gland as the next most common and then the body and the tail. Berk points out that there is frequently an overlapping of the sites and also the difficulty of determining the site at laparotomy. Sites in this series. Head, 3; Body, 3; Tail, 1; Head and Body, 1; Body and Tail, 2; Whole Gland, 2.

Metastasis

Lymph glands contain tumor deposits in most fatal cases. Peritoneal dissemination occurs frequently, especially from carcinoma of the body and tail. The liver contains metastasis in about 2/3 of fatal cases. There may be metastasis to lungs, spleen, bones and brain.

It should be pointed out that 3 were jaundiced on admission and 6 at autopsy.

Diagnosis

1. Pain is an early symptom and is usually abdominal but may be in the back and may be worse at night.

2. Loss of Weight—Not enough stress has been laid on this in the past. It has been recently reported from a gastrointestinal clinic that if loss of weight is recorded along with other symptoms the odds are 3 to 1 in favor of an organic basis for the complaints. This can be applied to the diagnosis of carcinoma of the pancreas.

3. Jaundice occurs more commonly in carcinoma of the head of the pancreas. It may be preceded by pain in many cases.

4. X-Ray—Barium series may show:

(1) Obstruction at some part of the duodenum, usually the 3rd part, or at the pylorus, with stasis in the proximal parts.

(2) Irregularity and deformity of the pylorus and the duodenum form infiltrative encroachment.

(3) Widening of the sweep of the duodenum.

5. Laboratory:

(1) Increased serum lipase and amylase.

(2) Impaired dextrose tolerance—this may occur in carcinoma anywhere.

(3) Stools occult blood may be present but not common and when ulceration through gastrointestinal tract.

(4) Anemia and increase sedimentation rate are late features.

(5) Fatty stools rare.

It may be pointed out that laboratory is usually of little aid in diagnosis.

Autopsy Findings

Site of Lesion	Jaundiced	Effusions	Metastases
1. Head of Pancreas 3 cases	Yes	No	Invasion of duodenum, right lung.
	Yes	No	Liver.
	Yes	No	Regional glands, retroperitoneal along vertebra.
2. Body of Pancreas 3 cases	No	No	Liver and glands along abdominal aorta.
	No	Pleural Effusion	Liver, regional glands, lumbar vertebra.
	No	Ascites	Liver, lungs, omentum, mesentery, nodules on colon, kidney, regional lymph nodes.
3. Tail of Pancreas	Yes	Ascites Bilateral Pleural Effusion	Lungs, liver, adrenal, psoas muscle, regional glands.
4. Head and Body of Pancreas	Yes	Pleural Bilateral	Liver, gall bladder, lungs.
5. Whole Gland	No	Ascites	Peritoneum of abdominal cavity, abdominal wall, omentum, surface of liver, wall of small and large bowel to submucosa, muscle of abdominal wall, diaphragm.
	Yes	Ascites	Peritoneum, liver duodenum, mediastinum.
6. Body and Tail of Pancreas	No	No	Stomach and lungs.
	No	Ascites	Lungs, stomach, small bowel, diaphragm, perisplenic tissue, periadrenal tissue.

Discussion

Berk says, "With progressive advance in surgical technique radical but curative operations have been made possible in cases of carcinoma of the pancreas. For these operations to be successfully employed, however, it is of utmost importance that an early diagnosis be made. Yet accuracy of diagnosis at any stage is not great, especially when there is no jaundice or when the body or tail of the pancreas is predominantly involved. In many cases the disease is incorrectly diagnosed and its presence missed in the early stages because in the mind of the average physician impressions of traditional diagnostic criteria have persisted despite the fact that they have repeatedly been shown to be false."

Majority of physicians consider jaundice as the single feature which is paramount in carcinoma of the pancreas and yet it is characteristic only of carcinoma of the head of the pancreas. It may occur when the lesion is elsewhere in the gland before the demise of the patient and when it is obvious that the lesion could only be in the pancreas or this has been discovered by laparotomy. In this series 50% were icteric at autopsy. Carcinoma of the extrahepatic bile ducts will give jaundice and symptom picture presented by this lesion is mistakenly accepted as pathognomonic of involvement of the head of the pancreas.

Hurst points out that insomnia, depression, anxiety and restlessness may be so prominent and so out of proportion to the abdominal pain, which may even be absent, that neurosis may at first be diagnosed. This occurred in 3 of the cases in this series, and is a well known pitfall in diagnosis.

Carcinoma of the pancreas not only carcinoma of the head of the pancreas should be considered more frequently in diagnosis. This is particularly true when the patient persists in his complaint of pain, vague though they may be, and is steadily losing weight and the usually diagnostic aids give negative results.

Where the diagnosis is in doubt an exploratory laparotomy should be done as only by radical surgery is there any hope of cure.

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Abstract

Cahan, William G., Woodward, Helen Q., Higinbotham, Norman L., Stewart, Fred W., and Coley, Bradley L. (Memorial Hospital, N.Y.): Sarcoma Arising in Irradiated Bone, Cancer, 1: 3-29, May, 1948.

The above authors present a review of the literature together with eleven cases to illustrate the dangers of and the occasional sequel of sarcoma in irradiation of bone. They contend that roentgen-ray or radium treatment is inadvisable for benign bone tumors and especially so if surgical treatment is practical. The reasons given are: (1) surgical measures give more satisfactory results as well as affording an opportunity for microscopic study, (2) many benign lesions of the bone are radio resistant, (3) in children irradiation may seriously disturb bone growth, (4) after a period of years bone sarcoma may develop at the site of previous irradiation.

There is considerable experimental evidence that irradiation can produce bone sarcoma. The literature on this is reviewed. The time intervals from exposure to developing the tumors are usually long. A comprehensive review of the literature on bone sarcomas developing in man following irradiation is presented. In many of the cases the initial lesion irradiated was tuberculosis and the tumors developing were usually a variety of osteogenic sarcoma or fibrosarcoma. The interval from treatment to development of tumor varied from three to twelve years. The authors' own cases included ossifying fibroma, benign giant cell tumors, bone cysts, osteoid osteoma, fibrous dysplasia, rib overlying site of post operative radiation following mastectomy and ethmoid adjacent to site of radiation following removal of retinoblastoma of eye. The intervals from radiation to time of developing of tumor varied from six to twenty-two years. The dosage of radiation usually exceeds 3000 r (soft tissue dose). (Bone doses greater than 3000 r in adults usually cause permanent damage of bones and doses exceeding 5000 r are liable to cause complete devitalization of bone; bones of children can survive greater dosages.) The authors point out that the development of bone sarcoma in the thoracic cage following heavy irradiation for mammary carcinoma or in the pelvic bones for uterine carcinoma is extremely rare, but since the time interval from irradiation until development of sarcoma is often long, a danger of this occurring in any case exists throughout the patient's entire life. A special comment is made on giant cell tumors. It is stated since these "have inherent tendencies to undergo alteration in their histologic appearance and clinical behavior it seems advisable to avoid, wherever possible, the use of an agent (roentgen-rays) that may of itself provoke a malignant change."

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MEDICINE

"Folic Acid"

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The tiny yeast cell produces a group of chemical substances which are known as the vitamin B complex. At first this complex had only a few members in it. However, since it has been fashionable to look more closely at this chemical family, more and more of its members have been identified, until one cannot help wondering how one tiny cell is able to produce such a large number of diverse chemical substances as there now are in this complex.

One of the more recently discovered members has caught the attention of the medical profession at large. It is being marketed under a variety of trade names. It might be worth while at this time, to review briefly what is at present known about it.

Development

The identification of "folic acid" was accomplished because of contributions made in diverse fields of biology. It has been known for some years that remissions could be induced in pernicious anemia by feeding large amounts of brewer's yeast. The actual substance responsible for these remissions was not known, but it was known that it was not any of the well-defined members of the B complex. Because of the wide acceptance of Castle's theory of intrinsic and extrinsic factors it was assumed that the explanation lay in the presence of these factors in the yeast, and most were content to let it go at that. In fact it is still not certain what substance or substances in the yeast were effective.

In 1935 Wills and Stewart were able to produce a macrocytic anemia in monkeys associated with sprue-like clinical features when these animals were given a diet of whole wheat, cod liver oil, vitamin C, casein, rice and adequate amounts of the known B complex. This picture could be cured or prevented by feeding liver or yeast. Day named the factor or factors present in the liver or yeast which cured these monkeys "vitamin M."

By 1940 it had been discovered that Lactobacillus casei required a factor for growth which was present in yeast, and green leafy vegetables. The factor was therefore called the L. Casei factor. It

was soon shown that some other bacteria also required this factor for their growth.

In the same year, agriculturalists, working with chicks, were able to produce a macrocytic anemia by feeding artificial diets, and this anemia could be prevented or cured by yeast, liver, or green vegetable extracts. The unknown factor was named vitamin Bc. Previously, two other factors had been designated as vitamins B10 and B11 because they were required for proper growth and feather formation in chicks. It soon became apparent that vitamin Bc was probably the same substance as these other two vitamins.

Also at the same time it had been shown that feeding rats poorly absorbed sulfa drugs with their food resulted in the production of anemia, thrombopenia and leucopenia, and this could be prevented and cured by the L. casei factor. It was not long before it became apparent that these various growth factors were very similar, and much work was done correlating one with the other. Differences in potency became apparent, and this was puzzling until it was shown that on hydrolyzing the less potent factors, their potency could often be increased. It was therefore reasonable to believe that the less potent fractions consisted of a more potent molecule linked to some other molecule that diminished its potency, and hence they were designated as conjugates.

The name "folic acid" was coined in 1941, because green leafy vegetables were such a good source of the substance.

The chemist soon entered the picture. In 1943 the active substance was isolated in pure form, and by 1946 its formula had been derived, and its synthesis accomplished.

If nothing else worth while comes from this work one valuable contribution has been made, and that is the elimination of a large number of growth factors from the literature, because among the factors related to folic acid are included: St. lactis R factor, B10, B11, vitamin Bc, vitamin Bc conjugate, norite eluate factor, factor U, vitamin M. etc., etc.

Chemistry

Chemically the structure of folic acid was found to be comparatively simple, and composed of fractions well known in biology. The molecule consisted of three parts:

1. Glutamic Acid—One of the non-essential amino acids, whose role in metabolism appears to increase in importance from year to year.
2. Para-aminobenzoic Acid.
3. Pterin—Encountered in the pigment of butterfly wings.

The compound was named pteroylglutamic acid (shortened to PGA, and also known as folic acid).

It was soon found that the conjugates consisted of PGA to which more molecules of glutamic acid were attached by peptide linkage. The conjugates are named according to the number of glutamic acid molecules present (pteroyldiglutamic acid; pteroylhexaglutamic acid, etc.). So far the greatest number of glutamic acid molecules found have been thirteen.

Assay

The folic acid is assayed by its effect on growth of those bacteria that require a source of folic acid for their growth.

Distribution

It is found widely distributed in plants, and also in animal tissues, particularly the liver and kidney.

Green vegetables contain 80-190 micrograms per 100 gm. vegetable, liver 35-47 and beef 11-12.

Physiology

The vitamin is present in foods largely as the conjugate. An enzyme is present in animal tissues which is capable of splitting many of the conjugates, and is referred to, in general terms, as "conjugase." There is also present in plants a substance or substances that inhibit this conjugase, and which is called the conjugase inhibitor. What the function of these substances may be in plants is not known. They are so widely distributed that they must have some role in plant metabolism. Even plants that do not contain chlorophyll have them, and in chlorophyll-containing plants the concentration of conjugate seems to parallel, roughly, the greenness of the plant.

As mentioned above, it had been shown that many bacteria require outside sources of folic acid for their growth. Many other bacteria also require this factor, but are able to synthesize it themselves. The folic acid manufactured by bacteria in the intestinal tract is very important, as there is not enough present in the food to meet the animal's requirements. The action of sulfonamides in the rat is presumably on its intestinal flora, which is depressed by this drug and does not manufacture sufficient folic acid to meet the needs of this animal.

Whether or not the conjugates are obsorbed as such, or must be first split to PGA does not seem to have been established. In the blood stream the compounds are found as conjugates. However, because of the effect of feeding conjugase inhibitors which will be mentioned below, one feels that possibly the conjugates must first be split.

The requirements for different animals appears to depend, at least in part, on the nature of the intestinal flora. Dogs are able to get along on very little whereas chicks require outside sources.

Observations in Man

The experiments on monkeys and rats at once suggested that the folic acid group might be of

value in the treatment of macrocytic anemias in man. The first reports on the use of these substances in pernicious anemia appeared in 1945, and it was soon apparent that they were able to produce hematological remissions in this disease. It was quickly shown, however, that the active liver substance effective in treating pernicious anemia was not folic acid, as liver extracts free from folic acid were very potent. The relationship between the liver principle and folic acid, then, became of considerable interest. Spies thought that perhaps folic acid acted as a coenzyme in the synthesis of thymine, (no relation of thiamine), a constituent of nucleoproteins, and he was able to produce hematological remissions in pernicious anemia by feeding massive doses of this substance. However, no evidence other than this has been produced, and most are dubious about this action.

Indeed at present there is little indication as to how folic acid does act in producing hematological remissions in the macrocytic anemias.

Studies in Pernicious Anemia

It was soon found that conjugated folic acid does not appear in the urine of humans, but the free folic acid does. It was also soon shown that folic acid added to tissue cultures of the megaloblast from pernicious anemia did not produce maturation of those cells, whereas liver extract does—another point of diference between these agents.

Feeding folic acid to pernicious anemia subjects would produce a remission; however, feeding of the conjugated forms produced variable responses, and it was soon apparent that the response depended on the amount of conjugase inhibitor in the food—if this were high there was little response. This suggested that the defect in pernicious anemia might be the ability to neutralize the conjugase inhibitor. To support this, it was found that normals excreted just as much PGA whether PGA or conjugates were fed, unless very large amounts of inhibitor were present.

It was also shown that pernicious anemia in relapse is associated with much less PGA excretion than was found in normals. If conjugase plus inhibitor were fed, there was no increase in urine output of PGA; if this feeding was given and liver extract at the same time, there was no increase in urinary PGA. However, if a remission was induced with liver extract, and this same combination fed, PGA in the urine did increase. It therefore semed that the liver extract acted in some way that would enable the patient to split conjugated folic acid even in the presence of inhibitor.

It was shown too, that patients with pernicious anemia did not have a deficiency in the amount of conjugase in their tissues, so defect in this enzyme was apparently not the explanation.

At this point, the pathogenesis of pernicious anemia must rest, at present. There are several unexplained observations that need to be accounted for:

1. Remissions can be induced by liver in very ill patients who are taking in very little folic acid substances in their diet. However, the bacteria in their intestinal tract could furnish the substance.

2. As will be seen, folic acid has no effect on the central nervous system.

3. The fact that liver extracts will produce in vitro maturation of the megaloblasts, which folic acid will not do; implying therefore, some more direct action.

Recently the isolation of vitamin B12 has been announced. The concentration of this substance in liver extracts parallels the anti pernicious anemia potency of those extracts. Good reticulocyte response can be obtained with as little as 6 micrograms of the substance. Perhaps this is the active factor in liver. Further work will be awaited with interest.

Pharmacology and Toxicology

Folic acid is almost non-toxic, unless it is given intravenously. Occasionally, then, the patient goes into a shock-like state. Some have attributed this to impurities. No deaths have so far been reported.

It sometimes causes pain when injected subcutaneously. When given parenterally, it is best given intramuscularly. It is effective by mouth.

Clinical Experience — Pernicious Anemia

Beyond doubt, folic acid is able to produce complete hematological remissions in pernicious anemia. The reticulocyte response is, perhaps not as great as that obtained with potent liver; it takes somewhat longer time to reach normal blood levels; some macrocytosis tends to persist and there is a tendency to show variations in blood counts from week to week, and later a tendency to relapse somewhat.

Usually the patient is started on 20 mg. a day, and this is continued until remission has occurred. A maintenance dose of 5 mg. a day is generally considered adequate, but as time goes on this usually has to be increased until the patient is taking 15-20 mg. a day.

It is now equally obvious that folic acid has no effect on the serious neurological complications of this disease. Indeed several observers have noted an almost explosive appearance of subacute combined degeneration of the cord, affecting especially the posterior columns. Neurological complications have appeared in as high a number as 30% of patients on folic acid alone, and can appear after the blood has returned completely to normal.

This makes folic acid as the sole therapeutic agent in pernicious anemia absolutely contraindicated.

Indeed whether this substance has any place in the treatment of pernicious anemia is doubtful, although some observers have felt that a combination of parenteral liver plus folic acid produces a better response than either alone.

Other Clinical Situations

It has also been established beyond doubt, that folic acid has no effect in normoblastic or hypochromic anemias, any more than it has any effect in normal individuals. Indeed there is no good evidence that folic acid can do anything that liver extract cannot do.

Nutritional macrocytic anemias; associated with nutritional deficiency such as occurs in pregnancy, pellagra, alcoholism, etc., will respond to folic acid as readily as they will respond to liver. Also the macrocytic anemias of infancy and childhood have been reported to be benefited by this substance by a few observers. As there is no danger of neurological complication in these diseases this therapy can be used advantageously.

Tropical macrocytic anemias which respond to crude liver extracts or oral yeast but not so well to purified liver extract do not respond well to folic acid, whereas crude liver produces a complete remission. It would therefore appear that folic acid is not the "Wills factor"—the name that has been given to the crude liver fraction active in this disease.

In the so-called achrestic anemias, in which there is a primary hyperchromic megalocytic anemia which responds poorly to purified liver, Wilkinson has reported a case which responded well to folic acid. As there is some doubt as to the existence of this disease further reports will have to be awaited.

Aplastic anemias show no response to folic acid, although occasional claims of variable and incomplete remissions have been reported with long sustained massive doses of folic acid. As spontaneous remissions of this nature are common, it is not justified in attributing these changes to the folic acid, merely because it happened to be used at the time. By and large if therapy in any disease is effective there is little doubt about it. If one has to look for minute statistical differences to see if there has been any response, then almost always that agent is not effective therapeutically.

The sprue syndrome—Reports are conflicting here. Celiac disease does not appear to benefit from folic acid. In the tropical sprues the results are very variable. The Americans reported good results with their cases, whereas the British have not had such good luck. Apparently those cases with severe macrocytic anemia do have some response, whereas the less severe cases do not.

In idiopathic (non-tropical) steatorrhea, there is generally a fair hematological response if a macrocytic anemia is present. There is considerable disagreement as to whether or not bowel function improves, some claiming that it does, others that it does not. It would appear that the most careful observers do not notice any marked improvement in the general clinical picture when the patient is treated with folic acid alone.

Idiopathic chronic ulcerative colitis—In these patients folic acid either has no effect or else makes them worse.

Agranulocytosis—Reports are seen claiming that patients with acute agranulocytosis are cured by folic acid. This claim has been made for almost every vitamin substance so far isolated. It is noted that none of the reports have come from observers who have had the temerity to use folic acid alone, in treatment. Penicillin has always been used as well. We know that if the patient can be prevented from dying of sepsis the chance of recovery, when the offending drug has been discontinued, is good. It has been shown that penicillin alone results in recovery of most cases. Therefore more striking proof will have to be submitted before any claim that folic acid is effective in this syndrome can be accepted.

Leucemias; Hodgkins, carcinoma, etc., no effect.

Conclusion

Folic acid is a member of the vitamin B complex and is essential for normal functioning of some organisms. A deficiency of this substance can produce certain manifestations in different species of animals. Its role in human metabolism is not yet clear. It can produce hematological remissions in some macrocytic anemias, where liver is effective. There is no evidence that folic acid can do anything that liver cannot do. Its use, alone, in pernicious anemia is contraindicated, because it has no effect on the serious neurological complications of that disease.

There is no justification for the inclusion of folic acid in the general shotgun prescriptions that are available on the market and which include as many of the factors which could conceivably affect blood formation as possible, but always in inadequate amounts and always at greatly increased expense to the patient. Shotgun therapy is the refuge of the diagnostically destitute.

Antagonists

The chemists are able to produce chemical substances which are closely related to metabolic necessities, such as thiamine. These synthetic substances are taken up by the organism in the same way that the essential substance would be taken up and incorporated into the same enzyme systems. However, as they are inert, they produce the same effect, metabolically, as a deficiency of the essential substance. These inert substances are called antagonists.

Several antagonists have been made for folic acid (pteroylaspartic acid; 4-aminopteroylglutamic acid (aminopterin); N12-methylpteroic acid).

Malignancy

In 1944 Leuchtenberger showed that the fermentation L. casei factor inhibited the growth of transplanted fowl sarcoma. In 1945 this same effect was reported by Lewisohn in breast carcinoma appearing spontaneously in mice. Lewisohn reported a few human cases that were temporarily benefited by intravenous injection of 5 mg. a day of this substance. Note, however, that this is **Not** folic acid, but is pteroyldiglutamic acid and pteroyltriglutamic acid (shortened to diopterin and teropterin). Folic acid has no effect.

Farber treated 90 human cases with assorted malignancies and felt that there was some improvement in several cases. However, no cures occurred and no great prolongation of life was observed. As pointed out by an editorial in the Journal of the American Medical Association, these experiments are interesting, but do not begin to suggest that any answer to the problem of malignancy has been approached—an idea that has been advanced in the lay press.

More recently still Farber and others have reported a series of acute leucemias in children, treated with aminopterin. In some of these cases remissions were apparently produced. As these were children, and as the remissions were fairly marked, there may be some value in the use of this substance here. However, as these remissions also occur spontaneously, one cannot feel that the drug has been at all established. 16 cases were treated; six had no apparent benefit; ten appeared to benefit. Further studies will have to be undertaken to establish the value of this agent, and undoubtedly related substances will also be investigated.

Bibliography on request.

Enterobius (Oxyuris) Vermicularis, "Threadworm," "Pinworm"

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Introduction

From time to time enquiries are received from the profession concerning the diagnosis and treatment of "Pinworms" or "Threadworms." Consequently the following may be of sufficient interest to warrant space for publication.

It is of little use to examine stool specimens for ova as these are deposited by the gravid female on the peri-anal skin. Due to the irritant itching caused by the adult worm and the adherent ova scratching occurs and the ova are transferred to the finger nails and thence to the mouth, especially in children. Ova are also scattered in the bedding and night attire and thence more widely in the home or institution. Commonly more than one person in the home is infected in this manner and all should be examined and, if need be, treated.

Diagnosis

Wrap a layer of scotch tape, sticky side out, around the end of a tongue depressor with a small amount protruding from the side where it is cut off to facilitate unwinding again.

Touch this sticky tape to the peri-anal area. This is best done in the morning before the bowels have moved or the parts washed. Unroll the tape from the tongue depressor by sticking it to a glass slide and smooth it out on the slide with the tongue depressor.

Eggs of threadworms are easily seen under the microscope and are clear shelled, rice grain like with one side slightly flattened. If the preparation is left in a warm room for a day each egg will contain an embryo worm folded from the middle in collapsed U shape.

Treatment

No treatment will be successful that leaves infected members of the household untreated. No treatment will be successful that allows reinfection from finger nails following scratching of the anal area. It is wise to use an ointment smeared round the anal area to allay the pruritis and kill the female worm if possible. Hexylresorcinol is probably the best. It is wise to use night attire that prevents access of the fingers to the skin and which is impervious to the shedding of ova through the fabric. This garment should be sterilized by dry heat or steam or boiling water each morning and dried for use again. The infection will die out if reinfection by ova to the mouth is prevented for a couple of months.

Drugs

Gentian Violet—(Medicinal) (Methylrosaniline). Given in enteric coated tablets 1 grain T.I.D. A.C. for 8 days and repeated for 8 days after one week interval. Dose for children reduced according to age.

Intoxication symptoms (15% cases)—Headache, vertigo, lassitude, nausea, vomiting and diarrhoea.

Contraindicated in severe cardiac, hepatic, renal or gastro-intestinal disease.

Alternative Treatment

Hexylresorcinol (caprokol is an oily sol.) Given in hard gelatin capsules as drug is very irritating to the mouth. Dose for adults and children over 10 years is 1 gram (gm). Dose for children 0.1 gms per year of age.

Acts best in empty intestine—so light evening meal and no breakfast. Drug given in one dose in morning followed in 2 hours by a saline purge. Never give oil with worm treatments.

Food **must not be taken for 5 hours after Hexylresorcinol.** After the purge light noon and evening meals are followed by soapsuds cleansing enema and then enema of one pint of 0.1% solution of hexylresorcinol crystals **to be retained for 15 minutes.**

This treatment may be repeated in 8 days and its low degree of toxicity permits of repetition in a few days or week and the patient can be fed up between times.

The Rh Factor

Bruce Chown, M.D.

Simple statements — omitting "excepts," "whereas" and "maybes":

1. The Rh factor is a specific chemical substance occurring in the red blood cells.

2. In the mixed white population of Manitoba it is present in 83.2% of men, women and children. Such people are called Rh-positive.

3. In the same population it is absent from the remainder; 16.8%. These men, women and children are called Rh-negative.

4. Erythroblastosis foetalis, manifested by severe jaundice, anaemia or oedema, or by death before or at birth **may** occur when the

Wife is Rh Negative
and
Husband Rh Positive

5. The disease is caused when the mother develops antibodies in her circulation that can destroy Rh-positive red cells, and passes them across the placenta to an Rh-positive foetus.

6. The antibodies are produced in the mother's circulation as a result of:

(a) Rh-positive red cells passing to her circulation from an Rh-positive foetus.

(b) Larger quantities of Rh-positive red cells passing to her circulation at the time of the abortion of an Rh-positive foetus or embryo. **Test all women two weeks after abortion for evidence of Rh antibodies.**

(c) Still larger quantities of Rh-positive red cells being injected into her intramuscularly. **Never inject a woman with her husband's blood.**

(d) Still larger quantities of Rh-positive red cells being transfused into her.

Never Transfuse Any Woman With the Blood of Her Husband

7. One abortion, one intramuscular injection or one transfusion can produce antibodies strong enough to kill future babies.

8. These antibodies persist for life.

9. In the absence of a previous abortion, injection or transfusion a first Rh-positive baby is practically always normal.

10. In the absence of previous abortion, injection or transfusion a second Rh-positive baby is usually normal.

11. Some Rh-negative women have many normal Rh-positive children: the largest number we have record of here is 14.

12. In contrast to the Wasserman, Rh tests are more important in multiparas than in primiparas.

13. Erythroblastosis does not occur unless the foetus is Rh-positive.

14. If, on routine Rh-testing, a woman is found to be Rh-negative, then send a sample of her husband's blood for Rh-testing.

15. If his blood is Rh-negative then all this couple's children will be Rh-negative and there can be no foetal or neonatal disease due to the Rh factor, **but** neither one must ever receive an Rh-positive transfusion.

16. If the husband is Rh-positive, disease of the foetus may occur, **but** it is less likely to occur if:

(a) The wife has never had an abortion, blood injection or transfusion.

(b) This is a first or second pregnancy.

(c) The husband is heterozygous for the Rh factor; i.e., carries one Rh-positive factor and one Rh-negative factor. (We can tell you the probabilities when we examine his blood).

(d) If the A-B-O group of husband and wife are as follows:

Husband A, Wife O or B
Husband B, Wife O or A
Husband AB, Wife O or A or B

i.e., when husband's blood group is such that it could stimulate antibodies against it in his wife's blood. (We will report the groups to you).

More briefly, sensitization in pregnancy is **most** likely to occur when the husband is group O, homozygous, Rh positive and the wife Rh negative, **unless** sensitization by transfusion, injection or abortion has taken place, when disease may occur irrespective of the A-B-O blood group of father and mother.

17. Erythroblastosis does not occur unless the red-cell-destroying antibodies develop in the mother's blood.

18. When you send us a routine pregnancy blood and we find the woman to be Rh-negative that specimen is routinely examined for these Rh or red-cell-destroying antibodies.

19. If antibodies are present, or if there is any doubt of their presence, we report this to you.

20. Unless specially requested by you we **do not report** to you **if there are no antibodies** in the first, routine specimen; no report, no antibodies.

21. All later specimens are reported, whether or not there are anti-bodies.

22. When antibodies are **not** found in the first specimen and the husband is Rh-positive we recommend further specimens of the woman's blood at about 6 months, 8 months and 2 to 6 weeks after delivery, and a specimen of the babies cord blood be sent. (Green labels for all these, please. If you have not them ask for them).

23. When antibodies **are** found in the first specimen we strongly recommend that a specimen be sent every month to the seventh month (32 weeks), and every two weeks thereafter. We can tell you something of prognosis from this and we want to learn more by studying more cases.

24. Where the history and the antibody curve indicate, we will recommend to you the treatment of the mother and probable treatment of the baby.

25. With your permission, the distance being not too great, and the roads being open, we will be present at the confinement if possible, and provide blood for transfusion of the baby if you wish and if indicated. So far as possible the blood is provided by free, voluntary donors.

26. Address all inquiries to:

Blood Grouping and Rh-Testing Laboratory,
Children's Hospital,
Winnipeg, Man.

PAEDIATRICS

Edited by S. Israels, M.D.

Mercury in the Urine of Children With Acrodynia

Josef Warkany and Donald M. Hubbard

Children's Hospital Research Foundation and the Kettering Laboratory of Applied Physiology, University of Cincinnati, Cincinnati, Ohio

(Lancet, Vol. CCLIV, No. 6509, pp. 829-830, May 29, 1948)

This study was undertaken in 1945 when a patient of 14 months of age having severe acrodynia showed 350 mg. of mercury per litre of urine. since then eight more cases were studied by the authors themselves and urines on 11 children with acrodynia syndrome in the Cincinnati area were analysed for mercury. It was found in appreciable amounts in 18 of the total group of 20 studied. This excretion continued for weeks in several of the patients.

A control series of urines were done on children in the hospital admitted for other reasons. Some healthy children and some adults appear in the control group. The mercury in these urines was negligible.

The only children of the acrodynia group in whom no mercury appeared in the urine were 8 and 14 years of age and the diagnosis was in doubt in these cases.

In a number of cases discussed in the article a history of the use of mercury ointment, teething powders or calomel was obtained.

The cases reported are in infants aged 7½ and 10 months. In both cases it was possible to get a history of ingestion of mercury in the form of teething powders. In both cases mercury could be found in the urine in amounts of 0.08 mg. per litre. After the use of B.A.L. in amounts of 2.5 mg. per kilogram, the amount of mercury in the urine rose rapidly indicating increased excretion by the use of B.A.L. and the symptoms subsided in six days.

The author speculated on the method of action of the mercury in this disease. He feels that the mercury exerts its effect on the adrenal gland resulting in overactivity with resultant hypertension, tachycardia and sympathetic overactivity. He attributes the adrenal stimulation to anoxia caused by the inhibition of the enzyme systems of the cells by mercury.

Sixteen references, 2 figures.

Sydney Israels

Ingestion of Mercury as a Probable Cause of Acrodynia and Its Treatment With Dimercaprol (B.A.L.) Report of Two Cases

Samuel E. Elmore

Department of Pediatrics, Tulane University School of Medicine, New Orleans, Louisiana

This is a report of two cases of acrodynia associated with the urinary output of large amounts of mercury and successfully treated by the use of B.A.L.

Temporary Remissions in Acute Leukemia in Children Produced by Folic Acid Antagonist, 4 Aminopteroyl—Glutamic Acid (Aminopterin)

Sydney Farber, Louis Diamond, Robert Mercer, Robert Sylvester and James Wolff

From the Children's Medical Center, Boston, Mass.

This paper is a report on the results of clinical and hematologic study on five children with acute leukemia treated by a folic acid antagonist, aminopterin.

The study was prompted by the effect noted in cases of leukemia treated with other folic acid conjugates—diopterin and teropterin.

Although 16 cases were studied by the group, five are reported out of the 10 who definitely benefited from the therapy.

The substance used is given by intramuscular injection in 1 mgm. quantities.

The five cases recorded showed remarkable changes in the blood and marrow. There was marked disappearance of blast forms from the blood and the bone marrow showed a shift toward maturity of the leukocytes. One remarkable antitoward effect in almost all the cases was the production of stomatitis with ulceration by the use of aminopterin.

The authors caution that the remissions are temporary — however, some of the cases have now been followed for one year — a long time for survival of a child with leukemia.

The study gives hope that further research will reveal more powerful drugs in leukemia therapy.

Editorial Comment

The two articles on acrodynia in this issue present the clinical application of a principle known to the biochemists for some time — that of enzyme or substrate competition.

Peters demonstrated that dimercapto-propanol, containing as it does two sulfhydryl groups, could compete successfully for heavy metals with the sulfhydryl groups of cellular enzyme systems. By this successful competition the heavy metal was removed and so did no harm.

This principle is involved in the treatment of acrodynia in the article by Elmore. It assumes that acrodynia is due to mercury poisoning.

It is interesting to speculate that our failure to see much acrodynia now may be due to the reduced use of calomel by the physician and the replacement of the use of ammoniated mercury in certain skin lesions by penicillin or sulfonamide ointments. However, it is now quite generally held that the latter ointments carry risks of sensitivity also.

Sydney Israels.

Medico-Historical

J. C. Hossack, M.D.

The Knights of Malta

During the war there was no spot on the whole of this war-wracked globe that so commanded our continued admiration and interest as did the island of Malta. But that was not new for Malta. Ever since classical times it has been a stage whereon brave men of every generation have performed deeds of superb and unsurpassed heroism. It is the Isle of Heroes.

Here I am going to tell you about the Knights of Malta — the old knights of St. John. Deep in the stony bowels of the island are their tombs, but only their bodies lie there. One would swear that in the grim days just past their spirits still fought on in Hurricanes and Spitfires, still waging ceasless mortal combat against the powers of evil; still fighting against tremendous odds for enormous stakes; still filling the hearts of their friends with wonder and admiration and gratitude; still striking awe and fear and dismay into the hearts of their foes. And as it was yesterday to our own certain knowledge, so was it in the past when these dead knights, alive in complete steel, struck Dragut from the ramparts of St. Elmo, and swept the corsairs from the middle sea.

The Knights Hospitallers of the Order of St. John of Jerusalem, called of Malta, formed the most remarkable as well as the oldest of the orders of chivalry. They were a body of warrior physicians —doctors who, in the heat of battle, strove mightily to maim and slay; but who, when the battle had been won, would sheath their swords and labour with the same assiduity to mend the wounds they had themselves inflicted and to save the lives they had so nearly taken. Indeed they were a kingdom of doctors. Until two years ago the Order had its proper seat in the Council of the League of Nations as a sovereign state and, for centuries, the Grand Masters of the Order were kings in all but name. Let me tell you then the story of the Order's origin, course and fate.

In medieval times every Christian yearned to see the places where his Saviour had lived and suffered. Although the Holy Land was possessed by the Moslems, it was nevertheless the goal of thousands of pilgrims from all over Christendom. The journey was long and arduous. The wayfarer was threatened on all sides by thieves, by murderers and, worst of all, by roving bands bent upon capturing slaves for the Moslem galleys. Much had each one to suffer, both by land and sea, before he could set his weary feet upon the Via Dolorosa and refresh his tired eyes with the sight of the Sacred Tomb.

About the middle of the eleventh century a group of merchants from the Italian city of Amalfi visited the Holy Places. They suffered much themselves and on their return they determined to do something to mitigate the hard lot of pilgrims. Accordingly they established a Hospital close to the Holy Sepulchre and staffed it with a group of monks who called themselves the Poor Brethren of St. John. Some time thereafter (1093) Peter the Hermit and Pope Urban set out to organize the First Crusade which ended successfully in 1099 with the capture of Jerusalem by Godfrey of Bouillon.

At that time the superior of the hospitallers was a Brother called Gerard. He and his brethren

tended to their sick and wounded guests with such care and loving tenderness that all whom they had served were loud in their praises. Godfrey himself took much interest in the Hospital and gave part of his estates to maintain it. His example was followed by others. Indeed many Knights, who with the conclusion of the crusade, found their occupation gone, consecrated their wealth and themselves to the Hospital as being the most effective way for them to serve Christ and His poor.

When Gerard died in 1118 the choice of the Chapter fell upon Raymond Dupuy who was the first to be called Master. Dupuy was a French nobleman and a soldier. It was not enough, he said, to lead pious lives and give medical aid to the sick; the brethren must be prepared to give their lives if need be in the protection of their patients. All around them were pagans and infidels; these must be destroyed. He urged upon the brethren that they pledge themselves to wage an unceasing warfare against the infidel. The Order thus became a military as well as a Hospital one.

Dupuy found in his order three separate groups. There were those of noble birth, those who were priests and the humble folk as devout and sincere as the others but capable only of serving them. Accordingly three divisions were established, knights, priests and serving brethren. All of these had to serve alternately in the hospital and in the field. The period of service varied. Many knights served for only two or three years but on their return home they formed nuclei which, scattered over the whole of Europe, gave the Order an international character. Furthermore bequests of lands to the Order made it necessary to have the brethren in charge as preceptors, commanders or bailis according to the extent of the property. During the 88 years that the knights of Jerusalem endured, the Order grew rich and strong. Unlike the contemporaneous Order of the Temple, which wealth first debased and then destroyed, the Order of the Hospital kept to its original practice. Its long story is unmarred by any taint of simony or of unfaithfulness to its vows.

Members of the Order were carefully chosen. All had to be pure in character and the knights had to prove nobility of birth for at least three generations on each side. Each one had to take a solemn vow of chastity, obedience and poverty. That vow, commanded by St. Augustine, was common to many orders, but hear what followed in the charge to the initiate; "We also make another promise, which no other people make, for you promise to be the serf and slave of our Lords the sick." . . . Surely nowhere in universal history is there such a strange paradox; a knight of sixteen quarterings washing the feet of a nameless beggar, dressing his filthy wounds, cleansing his scabrous sores, serving him delicacies upon dishes of silver, heeding him and tending him as if he indeed were the master. Yet such was the conduct of these proud warriors towards the poor in Christ and not to them only, but even to the infidels that came to them as patients.

While Dupuy was Master of the Order Jerusalem was visited by a German pilgrim called John of Warzburg. He set down his impressions and from them we can learn something about the original Hospital in Jerusalem. He says . . . "when I was there I learned that the whole number of these sick people amounted to 2,000, and sometimes in the course of one day and night more than 50 were carried out dead while many fresh ones kept continually arriving." Indeed we learn that after the great victory over Saladin in 117[illegible] 750 wounded persons were admitted. Rabbi Benjamin of Tudela mentions that the Hospital supported over 400 Knights. In addition to the establishment, the knights held many castles and fortified places scattered over Palestine. From John of Warzburg we learn that the 2,000 indoor cases were but a fraction of those aided by the knights. As many more sought help, advice and food at the hospital doors, and many who could not come for assistance were given it in their homes. The narrator was so overcome by the vast expense so entailed that he was led to exclaim "the whole sum of its expense can surely never be calculated even by the managers and stewards thereof."

The vast expenses were met out of huge revenues. It was a time when the pangs of conscience led many a wealthy sinner to cheat his heirs of their inheritance in the hope of cheating the devil of his soul. Knights gave up their patrimony, barons of their baronies, earls of their earldoms. Even kings were not absent from the list of benefactors, for Alonzo willed his kingdom of Arragon and Navarre to be divided equally between the three great Orders of the Hospital, the Temple and the Holy Sepulchre.

In 1187 the tottering kingdom of Jerusalem at last fell and the Knights of St. John sorrowfully left behind them the achievements of a century. First they established themselves at Markal, but with the capture of Acre by Richard Coeur de Lion in 1191, they went there and built a hospital almost as great as their original one.

It was while they were in Acre that the knights had their famous encounter with Sultan Saladin. Saladin had heard much about the generosity of the knights and determined to test them. Accordingly he disguised himself as a beggar and went to the knight on duty. He had, said Saladin, a grave ailment for which there was but one remedy. The knight assured him it would be given to him if it were in the power of his Order to supply

Saladin then said that the remedy was no other than the heart of the Master's Charger. Diagnosis and treatment being as they were in those days, the knight exhibited alarm rather than surprise at the request. However he told the Grand Master of the matter and was bidden to comply.

But Saladin did not mean to take advantage of such generosity. Instead, he revealed his identity and later sent the Grand Master a charter wherein he wrote, "Let all men know that I, Saladin, Sultan of Babylon, give and bequeath to the Hospital of Acre a thousand bezants of gold, to be paid every year, in peace or war, unto the Grand Master be he who he may, in gratitude for the wonderful charity of himself and his Order."

In 1291 Acre was captured by the Saracens, and the knights once more abandoning their possessions went first to Cyprus and then to Rhodes.

Their stay in Rhodes was notable in several ways. It was there that they laid the foundations of their great naval power. After the Moors had been driven out of Spain they continually preyed by land but especially by sea, upon the Christian communities. Men and women were captured by roving Moslem galleys and carried into slavery. Against these sea wolves sailed the great galleys of the knights protecting the pilgrims, safeguarding the coastal population and rescuing the enslaved.

It was likewise while they were the Knights of Rhodes that the Pope Clement V (in 1312) suppressed their contemporaries the Templars and transferred to the Hospitallers most of the wealth of that opulent but corrupt Order.

It was at Rhodes, also, that the Order was divided into Tongues. The international nature of the Order demanded that each national group should have its local organization in the Order. These groups were called Tongues, and there were seven, each of which had attached to it some special office. Thus the Grand Preceptor was always of the Tongue of Provence. The Grand Hospitaller was of the Tongue of France and so on. At this time a second order of knighthood was established. Hitherto all knights were called Knights of Justice. All were noble by birth and had received their accolade before entering the Order. The new knights were called Knights of Grace and did not have to show proof of nobility.

One of the most interesting stories of the Order relates to the destruction of the monster of Rhodes. It is not clear what exactly this monster was, but for long it had wreaked havoc on man and beast. It was so fearsome and dangerous that the knights had been forbidden to assail it, but one of the knights, De Gozon, determined to dispatch it and by a ruse he destroyed the creature. Proud of his achievement, he presented himself before the Grand Master. If, however, he had looked for praise, he was disappointed. The Grand Master coldly reminded him of his vow and of his duty. A knight who could not keep his vow of obedience was unfit to wear the cross he had disgraced. De Gozon was submitted to the humiliation of being stripped of knighthood. But after this fitting punishment for his disobedience, he was later fittingly rewarded for his bravery.

When the time came to elect a new Grand Master and Gozon was asked for his opinion, he gave it thus: "In entering this conclave I made a solemn vow not to propose any knight whom I did not consider to be most worthy of this exalted office, and animated by the best intentions for the glory and well-being of the Order. After giving great consideration to the state of the world and the needs of the Order, I declare that I find no other person so capable of governing our Religion as I myself." He then went on to relate his magnificent and extraordinary services and ended by saying that he felt satisfied that all knights would, in justice, vote for him. Which, incidentally they did and De Gozon was elected 26th Grand Master.

While they occupied Rhodes the knights were besieged twice. The first of these attacks they were able to resist. The second siege, undertaken by Soliman the Magnificent, saw 700 galleys and nearly 200,000 Turks arrayed against 300 knights, 200 serving brethren and about 5,000 mercenaries. But the Grand Master, Villiers de L'isle Adam was a host in himself and despite the enormous odds it took Soliman six months to wrest control of the island. Thus was Rhodes lost in 1523 after tenure by the knights of over 220 years.

The hospital at Rhodes was a large building of two stories. The Great Hall alone was over 150 feet long by 70 feet, the other 24 by 21 feet, about which were wards. There were special small rooms for the isolation of contagious cases. In all the wards each patient had a bed to himself—a thing unheard of elsewhere in those days. Each bed had a canopy with tapestry curtains in winter and mosquito netting in summer.

The Hospital admitted patients of both sexes and cared for abandoned or orphaned children. Women and children were cared for by the sisters of the Order. The head of the Hospital was the Grand Master who included in his titles "Custodian of our lords the sick." But as the Hospital grew in size, and as military and naval arrangements were also in his care, he devolved part of his duties upon the Grand Hospitaller who visited the patients twice a day. The actual care of the sick was in the hands of the Brothers of the Infirmary who were knights drawn for the time being from service on the sea.

Service in the wards of an institution so large as the Hospital of the Knights, gave a good training in the simple practice of the times so that many of the brethren might rightly claim

proficiency in medical and surgical care. There were, however, lay doctors, some of whom were ennobled as Knights of Grace. These professional brethren were required to see each patient twice every day, a clerical brother recorded the treatments prescribed for each and it was the duty of the Infirmarian to see that the instructions were carried out.

Regarding lay physicians there is a statute dated 1181 which says:

> It is decreed that for the sick in the Hospital in Jerusalem there should be engaged four wise doctors, who are qualified to examine urine and to diagnose different diseases and able to administer appropriate medicines.

Another paragraph in the same Statute reads:

> Moreover guarding them and watching them day and night, the brethren of the hospital should serve the sick poor with zeal and devotion as if they were their lords.

A later Statute goes thus:

> If any brother who has his duty in the infirmary do not give the sick the things that are necessary to them, or if he do not give them to eat before the brethren go to eat, and all things as provided by the House, let him undergo the septaine.

The septaine was seven days of penance with a public flogging twice in the week.

The care of the sick was the whole purpose of the Order. The galleys, the soldiers, were but for the patients' protection. The richest fare, tenderest attention, was for the sick. The knights' food was poor by comparison and the rigors of their lives contrasted vividly with the ease they gave their charges. White bread, game, wine, milk, fruit, such was the diet served on silver, while the knights ate the coarse food of the peasant on dishes of pewter.

It must be remembered that the Hospital whether at Jerusalem or Acre or Rhodes was never the only institution. The roads to the Holy Land were dotted with hospitals. Sometimes they were but a room in a castle. Sometimes they were large buildings in cities. But large or small, they existed by the hundreds throughout Christendom, and in every one the ragged, foot sore, heartweary pilgrim entered as lord and master, to be cared for and tended by a knight who for the occasion, became his serf and slave.

The valiant defence of Rhodes won from Soliman expressions of admiration. Indeed, this infidel conqueror showed more Christian compassion towards the knights than was shown to them by monarchs of their own faith. The knights left Rhodes with the honours of war but by the members of their own faith little was done for them. For seven years they were homeless until the Emperor Charles V offered them the Island of Malta in July, 1530.

The knights' first task on arriving at Malt was the erection of a hospital. Only when the were ready to house the sick did they turn to th construction of fortifications and the building u of a new navy.

In the wars which speedily broke upon the and in these for the first time, there appeared field service. In these dressing stations commo soldiers were attended by the knights "so that no all the army admired their charity as much as the had done their courage."

The new possessions of the knights include not only the islands of the Malta group, but th adjacent mainland including Tripoli. This the found so difficult to defend that it was given up Moreover there was about to fall upon them very terrible trial in the form of a siege.

The Siege of Malta in 1565 is one of the mos memorable in all history. That same Solima who spent so much time, treasure and blood in the capture of Rhodes, saw his ancient foes increasing in strength to a dangerous degree. Their great galleys everywhere attacked the Moslems, slaying and enslaving them. But to the knights never before had the destruction of the infidel been so necessary for the Ottoman Turks sweeping westward through the Mediterranean, threatened the Christian world. Only Malta, then as yesterday a rock of destruction for infidelity and paganism blocked the way to Moslem supremacy. In a letter to Philip II of Spain, his Viceroy wrote thus: "Malta is the key to Sicily and if it is lost, the defence of our own possessions will have to be at such immense expense that I do not know how it can be borne." So Malta with its knights stood in the gap. Their friends were weak or far away the enemy was strong and swiftly falling upon them from all quarters.

Upon Malta stood two principal forts on opposite sides of the horbour. The larger, El Borgo was also called the City of the Knights. The smaller was called St. Elmo. The Turkish armada consisted of a large fleet of galleys bearing 30,000 men. These were soon reinforced by a second fleet of almost equal size. The Turks were well supplied with cannon, some capable of discharging balls weighing 160 lbs. Their generals included Dragut Reis one of the most skillful leaders of all time. Opposed to this great power stood the Grand Master John Pariseau de la Valette with 541 knights and serving brethren and with a mercenary army of about 8,000. The Turks were frequently and strongly reinforced. Reinforcements to the knights had to make their way through the hostile ring of Turkish men and vessels. Many of these recruits were slain or captured and chained to the oars of the Moslem galleys.

The attack began on May 24th with the capture of St. Elmo as its object. This small fort, isolated upon a promontory, was deemed to be an easy conquest by the Turks. It was too small to hold a large garrison and so its defenders had no respite. By day they fought behind walls broken by the Turkish artillery. By night they made sallies and rebuilt their ramparts. By night also they carried out their wounded and brought in reinforcements. The fighting was bitter. Hoops covered thickly with oil-soaked cloth were hurled flaming among their enemies. Often two or three Turks were held and burned together in those fiery circles. Every known means of inflicting death was employed by both sides. Every trick known to ancient tacticians was used and improved upon. The many thousands of Turks charged time and again upon this isolated rock but day followed day and still the white cross on its crimson field floated over the Fort.

Yet every day saw more clearly the nearing end. The battered defences were at last put beyond repair. The solitary means of communication was finally closed. No hope of succor remained.

At length the day came which every knight knew must be his last. Early in the morning they gathered in their chapel and there made their peace with that God before whose throne they were so shortly to appear. Then those who were too ill or too sorely wounded to stand, had chairs set for them before the breech and there, sword in hand, they awaited the onslaught. It came with the dawn, yet so vigorous was the defence that four hours later the Turks paused to bring up fresh troops. In that pause the aged Baili of Negroponf counted his remaining force It was easy—there were but 60 still alive; none lacking wounds. Meanwhile Turkish soldiers had found points of vantage wherefrom they shot the defenders. Last to fall was the brave old Baili, struck down as he painfully limped forward armed only with a broken pike.

The siege of St. Elmo lasted for a month. It cost the lives of 1,500 Christians including 150 knights and the Turks lost 8,000 of their best troops. When Piali the Italian renegade commander saw how much had been done with so little, by so few against so many, he was filled with bitterness. He cut off the heads of the dead knights and set them on stakes facing El Borgo. Their naked bodies he nailed to wooden crosses, lashed upon them in derision the symbol of their faith and cast them into the sea where the current bore them to the foot of El Borgo. Next day was the 24th of June—the day of St. John the Baptist the patron saint of the order. Its slowly rising sun separating the shadows, revealed to the horrified gaze of the watchers upon El Borgo the ghastly evidence of their comrades' defeat and of the victors' savagery. The sight roused Valette to such fury that he ordered the decapitation of all his prisoners and, packing these gory spheres into his cannon he hurled them at his enemies. The siege of Malta lasted 120 days and in the end it was raised. It cost the lives of 9,000 Christians including two hundred and forty knights. But these lives were dearly sold. The Turkish losses were over 30,000 including Dragut himself who was hit by a shot fired from St. Elmo. The victory was applauded everywhere. Even as now, creed seemed of little importance when Christianity itself was in danger, and Protestant joined Catholic in prayers of gratitude. Grand Master Valette found his memorial in the City of Valetta.

The Great Hospital—the Sacra Infirmaria—had had much to do during the months of siege. Now it concerned itself again with civilians as well as soldiers. The hospital was a remarkable building The Great Hall was 503 feet long, with a width of 35 feet and a height of 30 feet. Attached to the hall were other halls and buildings. The total hospital population was probably well over 1,000.

Each patient had his separate bed with canopies. There were separate wards for medical and surgical cases; for fever and dysentery, for "isolation" and insane patients, for infectious cases, for convalescents, for the aged, for the dying, for women in labour, for children. One hundred and fifty beds were kept in constant readiness for wounded knights. There were also special wards for servants and galley slaves.

A visitor in 1676 says that every patient had "a closet with a lock to himself. The sick are served by the knights in person, their diet prescribed by the physicians and brought up in silver dishes. The beds were changed from time to time whenever necessary even several times a day."

The officer in charge of the Hospital was the Grand Hospitaller. He was the official head. The actual head was the Knight Infirmarian whose duty it was to see that the patients received proper care. There were certain lay appointments. Thus in a Rule of 1437:

"Learned and experienced physicians shall be called in for relief of the sick following the practice and writings of the most approved physicians."

And regarding surgeons we read:

"We order that for the same service for the sick they choose two surgeons that are prudent, discreet and skillful in their professions. They must first be examined and approved of by the physicians of the Infirmary: otherwise we forbid them to be admitted."

The chief physicians were three in number and each had two assistants. "The assistant physician for the month notes several times a day the symptoms of the sick in order to report them to the head physician at his visit; and to effect this, the assistant physician is not relieved until fourteen days after the physician has entered into residence so that when it is the other assistant physician's turn, he may know what to tell him about the condition of the sick."

"The Holy Religion keeps, moreover, a paid physician for the lecture on anatomy, and, in order, more especially that the beginners may be trained, a public lecture is held every Wednesday at which ordinary diseases are discussed."

The surgical service was similarly organized. In addition to assistants, there were six students called "barberetti," who, like junior internes, assisted the surgeons. Every Wednesday there was a conference upon the sick then in hospital. Female patients were attended by the professional attendants and nursed by sisters of the Order.

Much attention was paid to the quality of the food. Certain knights were given the duty of making sure that it was of the best. "And therefore the sick were given the best soup made of chicken, herbs, rice and minced meat which have been ordered for them such as chicken, pigeons, fowls, beef, veal, game besides milk of almonds, fresh eggs, plums and raisins and so on. Moreover the coolness of the drinks was assured by the use of ice brought daily from the peaks of Sicily.

The doctors and the Infirmarian saw the Grand Master accompanied by the Grand Crosses waiting upon the patients, serving them, listening to their complaints, if any, and washing them. The daily service of the patients was at the hands of the knights who were bound by their vow to treat them as their lords. The food was served on silver dishes. When Napoleon ravaged the Island, he melted down the dishes and obtained 3,500 pounds of silver.

Not only did the knights nurse, feed and even clothe their guests, but to those who were incurably ill, they gave a pittance of money. In what would correspond to a modern Out-patient Department, beggars and invalids were given food, bandages and old blankets, crutches, everything indeed that they might need.

Deserted children were admitted and marriageable girls were supplied with a dowry. Pilgrims were lodged and assisted. In addition there was a district nursing service and a sanitary service.

The Hospitallers were thus almost modern. Religion seemed with them to leave room for science because at a time when dissections were frowned upon, the knights had a rule to dissect everyone who died in the Hospital. This rule included the knights themselves, even the Gra Crosses.

A college was founded in 1602. In 1676 th is mention of a chair of Anatomy and by 1 students were graduated. License to practi however, required first of all a period of service the Hospital. For physicians this was six yea for surgeons four years, and for barber surgeo two years.

The Hospitallers became an International Or very early in their history. At the time of t Reformation they were powerful in every count of Europe, and after the discovery of the Ne World, they reached even the shores of Canad for in 1637 De Sillery founded a chapel and hospital in Quebec. Further, Champlain's succe sor was a Knight of St. John. Another link wi this continent was the offer of the then Gra Master to throw Valetta open to the Americ Marines who, having settled matters with Mont zuma were then engaged on the shores of Tripo

When the French Revolution broke out, thin went badly with the Knights. Then came Napole who saw that Malta was the key to the Medite ranean. The Island was strong, however. Th Knights and brethren numbered 900, their milit 18,000. Thus the Grand Master Von Homspec had more than twice the forces at the disposal Valette, and strange as it may seem, even in thes days of blitzkriegs, Malta fell in two days.

Homspech overwhelmed by disgrace, fled wit 16 Knights. The Order as it had been was ende Great had been its glory, but its glory was de parted.

It is common for tyrants to arouse the hatre of those whom they conquer and to treat them harshly. The Maltese soon learned to hate th French, and when Nelson attacked the island i 1800 it quickly fell. Sir Alexander Ball wa appointed Governor and by kindness and humanit so won the affection of the Maltese that the voluntarily sought to be brought under Britis rule. Still later, in 1814, the Congress of Pari ratified the change.

In the Square of St. George in Valetta is a tablet reading thus:

> Magnae et invictae Britanniae
> Melitensium amor et Europae vox
> Has insulas confirmat.

"The love of the Maltese and the voice o Europe have confirmed these islands to great and unconquered Britain."

This has been merely a glance at an Orde which still flourishes. Originally of papal creation it still in one branch continues as such and ha had since 1879 its headquarters at Rome, where Knighthoods in the Order are still awarded among papal honours. Better known to us is the Englis

anch which was re-organized in 1827 and which ourishes not only as an Order of Chivalry but so throughout the Commonwealth as the St. ohn's Ambulance Association and the St. John's rigade with their many thousands of serving rothers and serving sisters. Each of these bears pon him the ancient insignia worn by Valette d L'isle Adam, and each though in different arb and under different circumstances brings mfor and help to the injured and ill even as d the proudest and the humblest who centuries go served under the banner of the Knights Hostallers. And that same banner, changed only its colours, has become the symbol of pity in eace and especially in war, for the banner of e knights was what is now the flag of Switzerand. Dead though the knights may be their irit is not dead.

Temple Healing

Cario. Having arrived near to the Temple with r patient, then so unfortunate, but now at the ex o happiness, of blessedness, we first led him wn to the sea to purify him.

Wife. Ah! what a singular pleasure for an old an to bathe in the cold sea-water!

Cario. Then we repaired to the Temple of the d. Once the wafers and the various offerings d been consecrated upon the altar, and the cake wheaten-meal had been handed over to the vouring Hephaestus, we made Plutus lie on a uch according to the rite, and each of us prepared himself a bed of leaves.

Wife. Had any other folk come to beseech the ity?

Cario. Yes. Firstly, Neoclides, who is blind, t steals much better than those who see clearly; en many others attacked by complaints of all nds. The lights were put out and the priest joined us to sleep, especially recommending us keep silent should we hear any noise. There e were all lying down quite quietly. I could not eep; I was thinking of a certain stew-pan full pap placed close to an old woman and just hind her head. I had a furious longing to slip wards that side. But just as I was lifting my ead, I noticed the priest, who was sweeping off th the cakes and the figs on the sacred table; en he made the round of the altars and sanctified e cakes that remained, by stowing them away in bag. I therefore resolved to follow such a pious xample and made straight for the pap.

Wife. You wretch! and had you no fear of the od?

Cario. Aye, indeed! I feared that the god with is crown on his head might have been near the ew-pan before me. I said to myself, "Like priest, ke god." On hearing the noise I made, the old woman put out her hand, but I hissed and bit it, just as a sacred serpent might have done. Quick she drew back her hand, slipped down into the bed with her head beneath the coverlets and never moved again; only she let go some wind in her fear which stunk worse than a weasel. As for myself, I swallowed a goodly portion of the pap and, having made a good feed, went back to bed.

Wife. And did not the god come?

Cario. He did not tarry; and when he was near us, oh! dear! such a good joke happened. My belly was quite blown out, and I let wind with the loudest noises.

Wife. Doubtless the god pulled a wry face?

Cario. No, but Iaso blushed a little and Panacea turned her head away, holding her nose; for my perfume is not of roses.

Wife. And what did the god do?

Cario. He paid not the slightest heed.

Wife. He must then be a pretty coarse kind of god?

Cario. I don't say that, but he's used to tasting dung.

Wife. Impudent knave, go on with you!

Cario. Then I hid myself in my bed all a-tremble. Aesculapius did the round of the patients and examined them all with great attention; then a slave placed beside him a stone mortar, a pestle and a little box.

Wife. Of stone?

Cario. No, not of stone.

Wife. But how could you see all this, you arch-rascal, when you say you were hiding all the time?

Cario. Why, great gods, through my cloak, for 'tis not without holes. He first prepared an ointment for Neoclides; he threw three heads of Tenian garlic into the mortar, pounded them with an admixture of fig-tree sap and lenstisk, moistened the whole with Sphettian vinegar, and, turning back the patient's eyelids, applied this salve to the interior of the eyes, so that the pain might be more excruciating. Neoclides shrieked, howled, sprang towards the foot of his bed and wanted to bolt, but the god laughed and said to him, "Keep where you are with your slave; by doing this you will not go and perjure yourself before the Assembly."

Wife. What a wise god and what a friend to our city!

Cario. Thereupon he came and seated himself at the head of Plutus' bed, took a perfectly clean rag and wiped his eyelids; Panacea covered his

head and face with a purple cloth, while the god whistled, and two enormous snakes came rushing from the sanctuary.

Wife. Great gods!

Cario. They slipped gently beneath the purple cloth and, as far as I could judge, licked the patient's eyelids; for, in less time than even you need, mistress, to drain down ten beakers of wine, Plutus rose up; he could see. I clapped my hands with joy and awoke my master, and the god immediately disappeared with the serpents into the sanctuary. As for those who were lying near Plutus, you can imagine that they embraced him tenderly. Dawn broke and not one of them had closed an eye. As for myself, I did not cease thanking the god who had so quickly restored to Plutus his sight and had made Neoclides blinder than ever.

Wife. Oh! thou great Aesculapius! How mighty is thy power!—Aristophanes, "Plutus."

OBITUARIES

Reported by Ross Mitchell, M.D.

Dr. George Harold Carlisle

Dr. George Harold Carlisle, of Winnipeg, died on July 4, aged 66. Born at Peterborough, Ont., he graduated in medicine from Trinity University, Toronto, in 1905, and after postgraduate work practised first at Brandon and later at Winnipeg for thirty-six years as a specialist in eye, ear, nose and throat disorders.

During the first world war he enlisted with the 79th Battalion, Glen Campbell's Scouts, holding the rank of major, and later transferred to the 107th Battalion. To obtain service in France, he reverted to the rank of captain.

He is survived by his widow, one son and one daughter and four grandchildren. Dr. Murray Carlisle of Grand Prairie, Alta., is a brother.

Dr. William John Moore McFetridge

Dr. William John Moore McFetridge died in Winnipeg on July 29 at the age of 46. Born in Douglas, Manitoba, he was educated in Minnedosa and graduated in medicine from the University of Manitoba in 1927. He practised in Winnipeg from that date till 1939 when he joined the R.C.A.M.C.

During the battle of Britain he was attached as Medical Officer in the Royal Air Force. At the end of the war he returned to Canada and practised at Ocean Falls, B.C. A short time ago he came to Winnipeg. He is survived by his widow and a son.

Thirty-fourth Clinical Congress

American College of Surgeons

The thirty-fourth Clinical Congress of the American College of Surgeons will be held in Los Angeles, with headquarters at the Biltmore Hotel, from October 18 to 22, 1948. The program of scientific sessions on subjects in the fields of general surgery; eye, ear, nose, and throat surgery; gynecology and obstetrics; urology; and orthopedic, thoracic, plastic, and neurological surgery, will be supplemented by operative clinics in hospitals in Los Angeles and vicinity by showings of operations by television and motion pictures, and by a four-day hospital standardization conference for hospital personnel, according to Dr. Irvin Abell of Louisville, Chairman of the Board of Regents of the College. There will also be extensive technical and scientific exhibits.

At the Convocation which will be held on the final evening of the Clinical Congress, some 600 initiates will be received into fellowship.

Dr. Donald G. Tollefson, of Los Angeles, is Chairman of the Committee on Arrangements for the Clinical Congress.

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Manufacturer: Schering Corporation Limited, Montreal.

Active Constituent: Prophenpyridamine; (1-phenyl-1-(2 pyridyl)-3-dimethylaminopropane).

Action: Inhibition of histamine effects produced by allergens.

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Packaging: Tablets 25 mg. each, scored; bottles of 50 and 500.

EDITORIAL

J. C. Hossack, M.D., C.M. (Man.), Editor

Hayastacanosis

It is very difficult at this time of the year to get down to the serious business of writing serious editorials. July and August are holiday months. All our sensible readers are relaxing in one way or another and all the others (who, of course, are also sensible in a manner) are too busy to do any serious reading. Moreover, all the topics I have in mind are either un-topical at the moment or demand more energy in their preparation than I am capable of giving them. At this critical juncture I received a communication from an unknown correspondent. Most doctors can pretty thoroughly conceal their identity by merely signing their names. When one resorts to initials he practically defies detection. My correspondent rendered himself anonymous by the latter method for I was quite unable to arrange the irregular lines at the bottom of his note into any of the characters of the usual alphabet. Nevertheless I am indebted to him for the leaflet he sent, for such an epoch-making discovery as is therein related deserves the widest possible publicity.

The two greatest problems that have perplexed seers, sages and scientists since the beginning of time are "What is Life?" and "What is Death?" Our author has found the answer for the latter question. For a long time he had been going around asking everybody he met "Why do we, young and old, become sick and die?" Apparently no one seemed to know and just how he finally found the answer he does not tell, but one day he popped up with a new question "Do you know that we are born with death within us when we are conceived in the body?" Now here was a poser. Most people had the idea that they were born and then died but apparently we die first and are then born—a statement that cannot be regarded as anything but revolutionary.

Naturally in this scientific age people demand proof that this is more than mere theory. So our author produces the proof. He says that he has actually seen death, has photographed it, and knows exactly how it works. And what do you think it looks like? You'd never guess—it's a little snake! Maybe it is the same little snake that cavorts around with the pink elephants. Maybe that was how it was discovered. The fact is that we are not told anything about how it was discovered. All we are told is this: "Therefore let us take death and call it a parasite as it is black in color, looks like a snake and ejects venom." Can you imagine anything more succinct, anything more to the point. No tiresome experiments, no tedious technical details, no troublesome facts that might gum up the theory. You simply take death (which sounds easy) and call it a parasite (which is the essence of simplicity) and what have you?—a dark complected, "pizen-packin'" little varmint. And when you have done that you call it "Hayastacanosis." And why do you call it Hayastacanosis? Because its discoverer decrees that: "This snake-like parasite is to be known to the world at large as Hayastacanosis, as the word is derived from ever common ailments such as Hay Fever, Asthma and Cancer."

Having disposed of this matter of discovery and nomenclature let us see how the little ophidian does his dirty work. Although he is on the job before life begins he seems to be dormant for a while. Every now and again he stirs a little and spits out a bit of venom which results in a bad cold or snuffles or the like. As the individual grows, so does this pesky little worm and his squirtings get bigger and better. That is when you get asthma and pneumonia and so on. By now hayasta is getting down to business and raising a family (the author mentions "The parasite . . . and offsprings") and when the old man and his "offsprings" get going there's no saying what they will do. Your only chance is that they will fall out and do their spitting at each other instead of at your vitals. Even when that happens they ultimately, as we all know, patch up their quarrel and by simultaneously belching forth their venom ring down the curtain for the longest liver.

There is a practical point which demands a clarification I cannot give it. According to the author he not only photographed hyasta but copyrighted it in Ottawa and Washington. That is to say he copyrighted death and it logically follows that any one who dies (i.e. hayastacanoses) in Canada or the U.S.A. is guilty of an infringement of copyright. Just what punishment can be meted out to offenders is difficult to say. Inasmuch as they have hayastacanosed they would be beyond the ordinary processes of law. Perhaps this is one of the matters upon which the Doctor is prepared to give further information to "any eminent personality or individual who is sincere." If you feel that you are eminent and sincere (you must be both) I can give you the address of the author and then perhaps you could pass on the information to me for I do not feel myself qualified to write directly.

There is another question. Now that we know what death is, should we not for purposes of accuracy, insist upon man's last enemy being called by its proper name? Can we any longer tolerate

esar's statement "Cowards die many times be- e their death"? Should we not demand that read, "Cowards hayastacanose many times be- e their hayastacanosis?" Is it any longer neces- y to ask "O hayastacanosis where is thy sting?" en obviously it is in the critter's mouth? You how serious a problem has been brought into ng by that simple act of taking death and call- it a parasite.

The purpose of the leaflet is not clear. If death born before life and certainly takes over when has ended, and as life always ends eventually, what can be done about it? The author does not claim to have found an anti-venom. All he claims is to have discovered, photographed and copyrighted what hitherto has been regarded as an abstraction. Obviously and somehow he means to make money out of it; I can't quite see how it can be done but anyone who has gone as far into the extraordinary as he has gone will probably have found an answer to that question also. Certainly no one has soared to such heights in the realm of pseudo-science.

The Doctor and Canada's Health Program*

The Federal Health Program

In Canada's health history this is a memorable ar. The national health program announced last nth will mobilize each year $30,000,000 of the ion's financial resources to open new lines of vance for Canada's doctors while strengthening entire structure of health services with which Canadian doctor must work.

The black bag is still the symbol of the medical fession, but the discerning doctor must see him- f and his services against the broad pattern of dical facilities that the Canadian community s developed to enable him to serve it better.

The history of medicine reflects the growing pendence of the doctor on the health facilities ailable to him. To the simple relationship be- en doctor and patient has now been added the gnostic, hospital, laboratory and other facilities t have been developed to support the doctor his work.

Planning for Health Advances

The national health program is of vital im- rtance to every member of the Canadian medical fession. Largely because of your efforts, Can- a has been a leader among the nations in the el of health services. Now, by its action in king medical science more abundantly available all Canadians, this country is taking a great ward stride in this wide field of human en- avour.

As federal assistance is brought to the support provincial health campaigns, new possibilities en for planned and integrated frontal attacks inst disease. Not only will existing health pro- ms be vastly expanded but new horizons will w be discovered.

The national health program will have a great pact on Canada's health services. Its magnitude is seen in the fact that—apart from health services for Canada's veterans, and for Indians—**this $30,000,000 annual expenditure will equal Federal Government health expenditures during the past 27 years, and it will be nine times last year's expenditures.**

If we compare this Canadian program for federal health grants with the similar grant system in the United States, what do we find? **In most respects, on the basis of expenditure for each citizen, Canada's health grant program far exceeds that of the United States.** For example, this country will spend twice as much on hospital construction; three and one-half times as much for public health; our tuberculosis control grants will be nearly five times as large; our cancer grants fourteen times as large; and Canada will spend sixteen times as much as the United States on grants for mental health care.

I am convinced that Canada's health statistics a decade from now will prove that it has been a wise investment of this country's wealth in its own good health to put so much of its resources into the provision of more adequate health services. The high quality of medical practice in Canada has its foundation in a reasonably good level of health facilities. The national health program now makes possible a considerable increase in these facilities with the resultant improvement in the service that doctors will be able to provide.

The intimate relationship of the doctor to his community has given your profession a strong sense of community interest. Increasingly, organized medicine is taking part in the planning of community life. For example, towards the development of this national health program, the Canadian Medical Association has made its invaluable contribution. Dr. Heagerty—that great federal health official who pioneered in outlining the basic plans—had the advice, assistance and encouragement of the renowned "Committee of Seven," which spoke so ably for the Canadian Medical Association. Their best thinking was the

*An Address to the Annual Meeting of the Canadian dical Association at Royal York Hotel, Toronto, Ontario, nesday, June 23rd, 1948, by Honourable Paul Martin, nister of National Health and Welfare.

foundation for much of the health proposals that the Dominion Government made to the provinces in 1945.

Recently, when the Federal Government was considering the implementation of the present program, the officers of the Department of National Health and Welfare and I had the benefit of the advice of Drs. Routley, Archer, Johnson and Kelly of the Economics Committee of your Association. And then, of course, the twice-yearly meetings in Ottawa of the Dominion Council of Health, representing all the provincial health departments, ensures among other things that the point of view of the medical profession is constantly kept before the Government.

On the important occasion of the first World Assembly of the World Health Organization in Geneva this month, the Department of National Health and Welfare was glad to invite Dr. Clarence Routley, the distinguished general secretary of your Association, to be one of the Canadian delegation—both on account of his own very special talents and because he knows so intimately the point of view of the Canadian medical profession. The Canadian Medical Association shares the honour recently conferred on Dr. Routley when he was elected the first chairman of the Council of the World Medical Association.

In Canada, health has always been, for the most part, a responsibility of the provinces. The national health program does not disturb this balance, but it will powerfully supplement health services that have already been brought to a high level by provincial departments of health. In a parallel drive towards the common objective of good health everywhere in Canada, the close co-operation of the federal and provincial governments should guarantee the most effective utilization of the federal monies to be provided. After considering their relationship to an agreed and closely integrated national plan for health action, those programs should be supported that have been jointly approved as most likely to raise the level of the nation's health.

With this close federal-provincial partnership for good health and with these new financial resources to accelerate the drive against disease, we can confidently expect a steady united advance in all our health services. Now it is possible to move far beyond the early stages of health care in Canada to press on towards our ultimate goal—a positive state of good health for every Canadian.

No time is being lost to bring the national health program into effect. While awaiting the voting of funds in Parliament, a special meeting of the Dominion Council of Health was convened in Ottawa two weeks ago to work out co-operatively the conditions under which those health grants should be paid to the provinces.

This health program is so important to our w fare that I believe its detail should be familiar only to members of your profession but also everyone in Canada. You no doubt are aware the divisions of the federal grants under th general headings:

(a) Health Survey Grants.
(b) National Health Grants.
(c) Hospital Construction Grants.

Health Survey Grants

The health survey grants will enable each pro ince to carry out adequate studies of all its heal requirements. First of all, it will be possible chart provincial areas of health need so that national health grants can be used most effectiv At the same time, large-scale surveys can be ma of the relative shortages of hospital accommodati so that each province can recommend to the Fe eral Government those hospital construction pro jects that it considers to be of the most immedi importance.

These health survey grants will fill an import need in Canada for more accurate knowledge the exact extent of our health needs. Our heal programs cannot go beyond the level of our heal information. At the present time, our knowled of health conditions in Canada is far from ad quate. In many fields, long-range planning h been made difficult by the inadequacy of our in formation.

National Health Grants

The national health grants constitute a signifi cant eight-point program for health progress. A these grants will add to existing expenditures o health in Canada and will be given generally o the condition that existing expenditures be not re duced, it is evident that they will represent bot a very considerable increase in Canada's healt programs and—and this is more important—the will permit and encourage the expansion of al existing programs into entirely new fields o operation.

A short survey of these grants will indicate a few of the many possible lines of development tha will now open up to members of the medical pro fession and to all who work in the public healt field in Canada. It is easy for you to translat each new grant into terms of wider health service better diagnostic facilities and all the other forward steps to create the highest possible level of healt for all Canadians.

Public Health Grants—$4,400,000 to $6,500,000

The annual grant of $4,400,000 for general publi health will widely extend the scope of present pro grams and enable personnel to be trained for work in the public health field. It is planned to increase this grant yearly until in four years it will reach $6,500,000—that is 50 cents more for every citizen than is now being spent.

With this financial support, the provinces will able to have even more success in improving r child and maternity mortality rates; they will ble to take preventive action against blindness; will be able to keep well under control eases such as smallpox, diphtheria and typhoid; will be able to open a vigorous drive against gre t cripplers—polio, arthritis and rheuma-; and to extend and consolidate all their other blic health advances.

Professional Training Grant—$500,000

As you so well know, one of the urgent needs the health field in Canada is for more trained sonnel. A number of the health grants under new program will provide funds for this pur-e, but, in addition, a grant of $500,000 has been de available for training of personnel for work publ c health and for staffing the expanding spital program. Those who have carried a very avy burden in recent years may now look for-rd to have ample assistance in carrying out ir responsibilities.

Public Health Research Grant—$100,000 to $500,000

In addition to the annual medical grant pro-ded by the federal Government through the tional Research Council, there will be a new ant to start at $100,000 a year and to increase to 00,000 By making this grant increase over five ars, it will be possible for research facilities to velop gradually.

Any progressive program for public health must ve the correct weight to the value of research. e cost of research is obvious, but we must al-ys remember the dividends. We must remember sulin and diphtheria toxoid, sulpha drugs, the ti-biotics—all made possible by painstaking re-arch effort.

Mental Health Care Grant—$4,000,000 to $7,000,000

One of Canada's most urgent national health oblems is the prevalence of mental ill health. ore time and effort must be given to the preven-on, treatment and cure of the mental diseases at account for one-third to one-half of the hos-tal beds in use in Canada. It would seem that e pace and confusion of our civilization create ental health hazards for our citizens. The new deral grants, which will start at $4,000,000 and se over a period of years to $7,000,000 annually, ill enable medical science to move beyond insti-tional care and carry more active preventive mpaigns against mental ill-health into the com-unity itself. This grant will also help to meet e urgent need for more skilled workers in the ield of mental health.

Crippled Children's Grant—$500,000

The provision of a crippled children's grant to tal $500,000 a year will now make possible eatly expanded plans to search out and to treat ippling conditions in children. Already excellent work is being done in some provinces, and excellent programs have been laid out. This considerable annual grant will now make it possible for the fight against conditions that cripple children to go on at an accelerated pace. Provincial departments of health can develop more active campaigns for prevention of crippling conditions where possible and also for the treatment and rehabilitation of their victims.

Control of Cancer Grant—$3,500,000

The new health program also makes possible a really intensive nation-wide effort to lessen the ravages of cancer. To support and to develop all provincial programs against cancer, $3,500,000 will be available each year. This grant will make possible the mobilization of the special skills required to give the cancer victim his best hope of recovery through early diagnosis and expert treatment. This cancer control program complements but in no way supplants the intensive research programs now under way and which are so essential if we are to find out the cause and the correct treatment of this dread disease.

Venereal Disease Control Grant—$500,000

To assist the provinces in the control of venereal disease, annual federal grants of $225,000 have been made in recent years, but to intensify present efforts, the grant will now be raised to $500,000 each year.

Tuberculosis Control Grant—$3,000,000 to $4,000,000

In the past half century, great progress has been made in the eradication of tuberculosis from this country. But much remains to be done. The new health grant for tuberculosis control, which will rise from $3,000,000 in the first year over a period to $4,000,000 annually, should mark Canada's final chapter for this disease. With this grant to back up the excellent work now being done in all the provinces, it should be possible to make wider use of the latest advances in medicine, and the latest techniques in prevention and cure.

Hospital Construction Grants

The federal action to make available to the provinces up to $13,000,000 a year for hospital construction grants, over a period of at least five years, will provide an important incentive to hospital construction. The shortage of hospitals is one of Canada's most pressing health problems. The inadequacy of hospital facilities—especially in our rural areas—has placed an added burden on many of your profession.

Every province has been asked to make a thorough survey of its hospital needs. The hospital construction grants are available to help build new hospitals and might also be utilized to make such special arrangements for rural and sparsely settled areas as the building of nursing stations or health centres. The level of health services for rural

Canada should be greatly raised as the result of these grants. In the larger centres the grant will stimulate retarded hospital construction and alleviate many acute shortages of hospital beds.

The hospital pattern in Canada is the outgrowth of individual action and self-reliance. Our hospitals have been established and operated as self-sufficient units. But in many instances they have been developed without regard for each other or for the overall need of the area which they serve These hospital construction grants should enable a planned and integrated hospital construction program on a province-wide basis with particular reference to regional needs and to the type of hospitals required. This will help provide good medical care for Canadians regardless of where they live.

Canada as a Health Leader

Canada's great national health program adds impressively to health services that are already well founded on all levels of government. There are, of course, many elements for good health in Canadian life. The climate, the sturdy pioneer stock, the generally high level of living, good nutritional habits and the availability of good food —all these predisposed Canadians to good health. In addition, we owe much to the proficiency and high professional standards of the Canadian doctor. The standing of the Canadian medical profession is widely recognized. Here in Toronto, for example, doctors engaged in medical research and public health work have given world leadership in impovements and in entirely new developments in medical science.

It is clear then that it is from a fairly high level of health that we can now look forward to further progress. The quality of the health services that have been developed by the federal government, by the provincial and municipal governments, and through the efforts of the national voluntary health agencies, have given Canada world-wide prestige in many fields of health activity. Already Canada has come a long way in this century towards good health. This has been most strikingly indicated by the fact that life expectancy at birth has increased nearly an entire generation since 1900, and in the past decade alone four to six years have been added to the life-span of our children.

When the national health program is approved by Parliament, many projects that you have long advocated will now become possible for the first time. This program will give a tremendous impetus to research, to preventive medicine, to the rapid expansion of hospital accommodation and to better health services generally. More attention must be given to all those environmental aspects of good health that are connected with housing, nutrition, sanitation, recreation, and economi working conditions.

With the continued advance of medical s and its application through your profession in ada, and with the constant improvement elargement of federal, provincial and mun health services, I believe that this new health gram will mark an important turning point i efforts to overcome all that leads to ill healt to remove the barrier that keeps Canadians enjoying a positive state of good health.

Our Challenge to Health Progress

As this national health program can he Canadians to better health, it is of importan all. But to your profession especially, which as its highest objective the raising of our h levels, this program is especially important thinking through the plans to expend these f as effectively as possible, the Department of tional Health and Welfare must depend, in g measure, on the considered opinion of your fession. Your ideas will influence your provi health authorities who will have the responsibi in the closest co-operation with the federal gov ment, of making this program work.

I can assure you that I and all the officer the Department of National Health and Welf will continue to make considerable demands on time and the advice of many of you in the Ca dian Medical Association, in order to have alw before us the views of the members of your p fession.

The medical profession has done a distinguish job in Canada. With each new advance in medi science, members of your profession have doubled their efforts to put into their daily pr tice the new techniques that have been discover As a fair return for medical advances in oth countries, they have made their own importa contributions to world medicine. With high tra tions of professional competence and of profe sional service, Canada's doctors will find in th national health program increased opportunities bring Canada into the front rank of all nation that are effectively furthering the good health their peoples.

The success of the national health program and we are determined to make it a resounding success—will depend on the wholehearted co operation and goodwill of your profession. The program is Canada's challenge to health progre In the advances that it makes possible, we m look to your profession for leadership. The advances will not be easy but the energy, the spir and the devotion of the Canadian medical pr fession is our warranty that you can lead us f beyond present levels of health achievement vou bring to all Canadians the heritage of go health.

ASSOCIATION PAGE

Reported by M. T. Macfarland, M.D.

The Annual Meeting of the Manitoba Division of the Canadian Medical Association be held at the Royal Alexandra Hotel for three days, Tuesday, Wednesday and Thursday, ber 19th, 20th and 21st.

Committees have been selected as follows but each Chairman may be seeking additional rs and your name may be the one selected.

You may assist the Committees by offering your services, or by passing along suggestions will make the meeting an outstanding success—one of the best ever held under Manitoba al Association auspices:

ific Programme:

Dr. J. M. Kilgour, Chairman
Dr. Quentin D. Jacks
Dr. A. M. Goodwin
Dr. H. Guyot
Dr. Stuart Schultz
Dr. E. S. James

ration and Reception:

Dr. Murray H. Campbell, Chairman
Dr. H. S. Evans
Dr. Murray McLandress
Mr. J. G. Whitley

city:

Dr. J. Roy Martin, Chairman
Dr. A. R. Tanner
Dr. L. R. Rabson
Dr. S. S. Peikoff
Dr. J. E. Isaac

tutions:

Dr. D. C. Aikenhead, Chairman
Dr. Henry Funk
Dr. A. A. Klass
Dr. J. W. Kettlewell

tific Exhibits:

Dr. D. W. Penner, Chairman
Dr. M. K. Kiernan
Dr. Earl Stephenson

Entertainment:

Dr. Athol R. Gordon, Chairman
Dr. Anna E. Wilson

Financial:

Dr. C. B. Schoemperlen, Chairman
Dr. Ross H. Cooper
Dr. J. M. Matheson
Dr. J. A. Swan

Commercial Exhibits:

Dr. F. A. L. Mathewson, Chairman
Dr. J. R. Mitchell
Dr. D. S. McEwen
Mr. J. G. Whitley

Golf:

Dr. N. W. Warner, Chairman
Dr. Ida M. Armstrong

Ladies' Committee:

All the names have not yet been received, but you may be assured that there will be something novel in their planning.

Remember!

The Date—October 19, 20, 21

The Place—Royal Alexandra Hotel, Winnipeg

Hotel reservations should be made early to avoid disapointment. If any assistance is required write to Executive Secretary, 604 Medical Arts Building, Winnipeg. (Phone 92 707).

Convention Expenses Deductible from Income Tax Returns

The Canadian Medical Association

the Secretaries of Divisions:

Attached for your information please find copy directive from the Deputy Minister of Taxa- Department of National Revenue, concerning deduction of expenses of attending medical tings for income tax purposes. It is a matter great satisfaction to be able to report the suc- ful conclusion of negotiations with the Depart- t of National Revenue of this matter, and I sure that the members of your Division will be interested. You are authorized to give this the widest publicity through the medium of your Provincial bulletin or otherwise.

You will note that the effective date of this memorandum is January 1st, 1948, which will permit members who attended the 79th Annual Meeting of this Association and/or the Annual Meetings of Divisions to claim their expenses. We are preparing a certificate with respect to the annual meeting of the Canadian Medical Association along the following lines:

The Canadian Medical Association

This is to certify that .....
was in attendance at the 79th Annual Meeting held in Toronto, Ont., June 21st to 25th, 1948, for a period of ..... days.

T. C. Routley,
General Secretary.

Members who registered will be provided with the necessary certificate on application to this office, and such application should indicate the number of days actually in attendance.

I am submitting the above form of certificate for concurrence by the Department of National Revenue, and secretaries of Divisions will doubtless want to provide themselves with supplies of similar documents for the meetings which have been or will be held in the year 1948. If any essential change should be made in the form of the certificate, I will advise you further.

Yours faithfully,

A. D. Kelly,
Assistant Secretary.
Directive Number 205.

Department of National Revenue
Taxation Division

Directive From the Deputy Minister
Dater July 12th, 1948.
For Public Circulation

Subject: Assessments—Convention Expenses of Medical Profession.

Effective 1st January, 1948, the reasonable expenses incurred by members of the medical profession in attending the following Medical Convention will be admitted for Income Tax purposes against income from professional fees:

1. One Convention per year of the Canadian Medical Association.

2. One Convention per year of either a Provincial Medical Asociation or a Provincial Division of the Canadian Medical Association.

3. One Convention per year of a Medical Society or Association of Specialists in Canada or the United States of America.

The expenses to be allowed must be reasonable and must be properly substantiated; e.g. the taxpayer should show (1) dates of the Convention, (2) the number of days present, with proof of claim supported by a certificate of attendance issued by the organizations sponsoring the meetings; (3) the expenses incurred, segregating between (a) transportation expenses; (b) meals and (c) hotel expenses, for which vouchers should be obta and kept available for inspection.

None of the above expenses will be allo against income received by way of salary s such deductions are expressly disallowed statute.

(Signed) D. Scully,
Deputy Minister (Taxati

District Medical Societies

A meeting of the Northwest District Me Society was scheduled for Hamiota on Wedne July 28th, where the Hudsons, Father and had made preparations to receive more than average number of interested members, and vide hospitality for which that central spot of municipality is well-noted. However, Jup Pluvius had other plans, and the result was attendance was greatly diminished. Drs. A. Houston and K. R. Trueman, of Winnipeg, w the speakers, and the interest evinced by th who did attend the meeting made them feel t the trip had been well-worthwhile—whether cold or whether it's hot, we've got to h weather, whether or not!!

Drug Addiction in Canada

A report on Drug Addiction in Canada recently been published by authority of Hon. P Martin, Minister of National Health and Welf Ottawa. In the Preface, Dr. G. D. W. Camer Deputy Minister of National Health, indicates t "This Report is a result of a study undertaken provide factual data which would serve as a ba for consideration of possible further action w respect to narcotic control and drug addiction Canada.

The Report presents the findings of Mr. Jo and is not an expression of the official views the Department of National Health and Welfa but it is published by the Department on t recommendation of the Technical Advisory Co mittee on Narcotic Drug Addiction. It was co sidered that it would be useful to have availab to those seriously interested in the drug addict problem this comprehensive report which includ an appraisal of the present situation, as reveal by available information, and a discussion authoritative data regarding the etiology, trea ment and other aspects of drug addiction."

Inquiries concerning copies of the publicati should be addressed to Mr. C. W. Gilchri Director of Information Services, Department National Health and Welfare, Ottawa.

SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

ya!!! Two weeks late as usual. I guess I'd tter boost the Medical Women first. Impossible to detail all C.M.A. officers, but I see that xt year officers of the Medical Women of nada are to be: Canadian President, Dr. Anna icholson, of Saskatoon; Manitoba President, r. K. V. Borthwick-Leslie; Secretary of the ederation, Dr. Emma Adamson; Correspondg Secretary, Dr. Anna Wilson; Scholarship onvener, Dr. Ellen Douglass; Overseas Comittee, Dr. Jessie McGeachy. It would seem at for once the West wins all the work.

♦

it just like our old friend, Dr. Harry Lewis, ho, at the moment, is on the deck of an Arctic ip, "Regina Polaris," on a 13,000-mile voyage the Far North, as surgeon to the Eskimos and dians.

♦

gratulations and best wishes to the Altona Hosital recently opened, under the very able upervision of Dr. S. Toni. This hospital will ill a much needed gap in our medical service so spoke an old Mordenite).

♦

dale Drive makes history with lovely children nd rockeries and beautiful flowers (petunias—hat?? no onions). So, Dr. Danzinger and Dr. owden compete with all the Reverends in orticulture.

♦

are, indeed, pleased to have Dr. E. J. Rutledge, who has resigned as Progressive Member in he Legislature for Minnedosa, an up and doing ember of our Provincial Health Branch. We eed more men like Dr. Rutledge in our Health Units.

♦

s impossible to comment on all the summer vacationists, but worth noting and in such excellent company as Dr. A. W. Trueman, President of the University of Manitoba, sailng on the Empress of Canada were Dr. and Mrs. P. H. T. Thorlakson and daughter, Tannis. I hope they are going to enjoy their trip just as much as your "gossip monger" enjoys her five-day cruise on the Great Lakes.

♦

y sincere congratulations to Dr. Fred Jackson on his leave of absence from the Manitoba Govrnment to a very important post with the Dominion Government in Ottawa. We will miss Dr. and Mrs. Fred very much, but trust hat they will be performing a much more important duty in Ottawa.

At St. Alban's Anglican Church, June 25th, Jean Blackwell became the bride of Dr. Oliver John White, son of Dr. and Mrs. Everett White. Dr. A. F. Young was best man. Ushers were Dr. A. M. Davidson and Dr. D. F. Osborne. The reception was held at the University Women's Club. Following a wedding holiday at Falcon Lake the young couple will reside in Winnipeg.

♦

I hear by the grape-vine that the Grandparents, Dr. and Mrs. Gordon Chown and Dr. and Mrs. W. A. Gardner, are sitting and smirking. The Gardners, hoping that their grandchild at four months is able to sit up and grin at all comers. I wonder who the next grandma and grandpa are going to be!

♦

Birthday congratulations to Dr. Eddie Ross, born at Emerson, Manitoba, in 1902 (gosh, Eddie, I didn't know you were that old).

♦

Congratulations to Captain Ross Willoughby on the award of the M.B.E. Also the awards given to all the other officers taking part in the Canon Turner mercy flight.

♦

It was very, very entertaining and educational to be the hosts of the Southern Society of Clinical Surgeons and their wives who visited Winnipeg in June, terminating a six weeks' tour of the U.S.A., Honolulu and Canada. Scientifically, they were entertained at the General Hospital. Socially, at the homes of Drs. C. W. Burns and G. S. Fahrni.

♦

Dr. and Mrs. F. G. Stuart, 212 Wildwood Park, announce the arrival of Gordon Francis, July 19th, brother to Richard Greg. Wildwood comes through again!

♦

Rumour has it that the scientific section is planning a particularly interesting and instructive session at the M.M.A. meeting looming up. It is to be hoped that the meeting is well attended.

♦

What happened to my suggestion re the drug detail men? I have heard nothing from either professional or detail men.

♦

To me it is tragic that a man like Dr. A. B. Stewart should only in November decide to live a life of leisure and now we are mourning his loss. Should it be a lesson to us to retire before we die? Sincere sympathy to his family and many friends.

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1948		1947		TOTALS	
	May 16 to June 12,'48	Apr. 18 to May 15,'48	May 18 to June 14,'47	Apr. 20 to May 17,'47	Dec. 28,'47 to June 12,'48	Dec. 29,'46 to June 14, 47
Anterior Poliomyelitis	0	0	0	0	3	0
Chickenpox	342	227	180	80	1487	640
Diphtheria	0	2	7	8	8	56
Diphtheria Carriers	1	0	2	4	1	13
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	0	0	2	0	0	3
Erysipelas	4	7	3	6	17	25
Encephalitis	0	0	0	0	0	0
Influenza	4	64	4	16	105	119
Measles	139	43	484	966	290	5044
Measles—German	2	6	4	9	31	32
Meningococcal Meningitis	0	2	0	1	7	9
Mumps	242	216	85	115	1146	1099
Ophthalmia Neonatorum	0	0	0	0	0	0
Pneumonia—Lobar	12	24	16	19	90	131
Puerperal Fever	0	1	0	0	1	3
Scarlet Fever	24	59	20	23	118	124
Septic Sore Throat	1	3	5	1	13	14
Smallpox	0	0	0	0	0	0
Tetanus	0	0	0	0	0	1
Trachoma	0	0	0	0	0	2
Tuberculosis	93	135	256	164	544	736
Typhoid Fever	2	0	0	1	4	1
Typhoid Paratyphoid	0	0	0	0	0	0
Typhoid Carriers	0	0	0	0	0	1
Undulant Fever	4	2	2	0	6	3
Whooping Cough	23	22	71	192	197	625
Gonorrhoea	119	119	178	104	688	928
Syphilis	38	36	53	44	246	275
Diarrhoea and Enteritis, under 1 yr.	21	20	25	16	89	88

Four-Week Period, May 16th to June 12th, 1948

DISEASES (White Cases Only)	*743,000 Manitoba	*906,000 Saskatchewan	*3,825,000 Ontario	*2,962,000 Minnesota
*Approximate population.				
Actinomycosis	....	....	1	....
Anterior Poliomyelitis	....	1	11	5
Chickenpox	342	63	1687	....
Diarrhoea and Enteritis	21	2	....	....
Diphtheria	....	....	3	5
Diphtheria Carriers	1	....	....	....
Dysentery—Amoebic	....	....	....	2
Dysentery—Bacillary	....	....	1	1
Erysipelas	4	1	7	....
Infectious Jaundice	....	....	4	....
Influenza	4	1	35	....
Malaria	....	....	1	9
Measles	139	19	2619	901
Measles—German	2	....	69	....
Meningococcal Meningitis	....	3	3	2
Mumps	242	235	838	....
Pneumonia Lobar	12	....	....	....
Puerperal Fever	....	....	1	....
Scarlet Fever	24	2	303	113
Septic Sore Throat	1	....	12	....
Trichinosis	....	....	....	1
Tuberculosis	93	34	133	401
Typhoid Fever	2	3	1	....
Typh. Para-Typhoid	....	....	2	2
Undulant Fever	4	....	3	7
Whooping Cough	23	27	63	43
Gonorrhoea	119	....	218	....
Syphilis	38	....	140	....

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period, May 19th to June 16th, 1948

Urban — Cancer, 51; Pneumonia Lobar (108, 107, 109), 2; Pneumonia (other forms), 4; Syphilis, 5; Tuberculosis, 7; Diarrhoea and Enteritis (under 1 year), 2; Septicemia, 2; Other Diseases Due to Spirochetes, 1. Other deaths under 1 year, 19. Other deaths over 1 year, 184. Stillbirths, 17. Total, 220.

Rural — Cancer, 23; Pneumonia Lobar (108, 107, 109), 2; Pneumonia (other forms), 11; Tuberculosis, 9; Diarrhoea and Enteritis (under 1 year), 6; Hodgkin's Disease, 1; Mumps, 1. Other deaths under 1 year, 21. Other deaths over 1 year, 182. Stillbirths, 12. Total, 215.

Indians—Pneumonia Lobar (108, 107, 109), 1; Tuberculosis, 2; Diarrhoea and Enteritis (under 1 year), 1. Other deaths under 1 year, 7. Other deaths over 1 year, 2. Stillbirths, 1. Total, 10.

♦

Poliomyelitis—At date of writing (July 8th) only one case has been reported this summer. He is a Winnipeg boy, 18 years of age.

Chickenpox and **Mumps** are the only diseases which are epidemic at the present time.

Both **Syphilis** and **Gonorrhoea** show some decrease in the figures for the half year.

National Immunization Week has been set this year for September 12th to 19th, which is just after schools have reopened, and an excellent time to start your fall clinics. All Medical Health Officers will be receiving literature during August.